Tropical Surprise
Double NEDIPA

Grain Bill:
- 6 lb Golden Promise Pale Ale Malt
- 6 lb 2-Row Malt
- 2 lb Flaked Wheat
- 1.5 lb Flaked Oats
- 4 oz Honey Malt
- 4 oz Acidulated Malt
- 1 lb Corn Sugar (see notes)
- 8 oz Lactose (see notes)

Recipe Target Numbers:
Target OG: 1.083
Target ABV: 1.021
Target IBUs: 38.8
SRM: 5.87
Mash Temp: 149°
Mash Time: 75 min
Boil Time: 60 min
Primary Ferm Temp: 68-72°

Hop Additions:
- FHW 1.00 oz El Dorado
- Steep/Whirlpool 0.50 oz El Dorado 40 min
- Steep/Whirlpool 0.50 oz Citra 40 min
- Steep/Whirlpool 0.50 oz Mosaic 40 min
- Steep/Whirlpool 0.50 oz El Dorado 20 min
- Steep/Whirlpool 0.50 oz Citra 20 min
- Steep/Whirlpool 0.50 oz Mosaic 20 min
- Dry Hop 1.00 oz El Dorado 7 days
- Dry Hop 1.00 oz Citra 7 days
- Dry Hop 1.00 oz Mosaic 7 days
- Dry Hop 1.00 oz El Dorado 4 days
- Dry Hop 1.00 oz Citra 4 days
- Dry Hop 1.00 oz Mosaic 4 days
- Dry Hop 1.00 oz El Dorado 2 days
- Dry Hop 1.00 oz Citra 2 days
- Dry Hop 1.00 oz Mosaic 2 days

Due to the amount of hops in this beer, we have calculated this recipe for a 6 gallon batch (in the fermenter), and you should adjust your water needs as necessary. If using RO or distilled water, add 3 g of Gypsum & 8 g of Calcium Chloride to your mash & 2.5 g of Gypsum & 5.5 g of Calcium Chloride to your sparge water. This will accentuate the "juicy", tropical aromas from the hops and give you a pleasantly soft mouthfeel. The first hop addition is first wort hopping (FWH). As you begin to collect sweet wort from your mash tun to your boil kettle, add the designated hops then begin to heat to a boil and set your 60 min timer as usual. Add the corn sugar and lactose with 5 minutes left in the boil. The last 2 hop additions in the boil are ?steep/whirlpool? additions. AFTER THE BOIL, add the first round of steeping hops to the hot wort after the flame goes out, chill to 170°F, and steep the hops for 40 minutes. Add the second round of the whirlpool hops with 20 minutes left on the timer, then thoroughly chill the wort as usual. This recipe features two dry hop additions. 3 days after you pitch your yeast, add the first round of dry hops. 4 days before you plan on bottling/kegging, add the second round of dry hops.

Example Notes:
If the SG of your sample is 1.052 at 73°F, then the delta G is 0.002, and the corrected SG is 1.054.
**Before Brewing**

At the beginning of your brewday, take your yeast out of the fridge and allow it to rise to room temperature.

- If you opted for a Wyeast "Smack Pack," activate your yeast by following the instructions on the back of the package.
- If you made a yeast starter, turn off the stir plate and allow the yeast to settle out to the bottom of your flask.

**Brewing**

**Preparation**

- Do a personal inventory check of all of your equipment and ingredients. Make sure all grains are milled before brewing.
- Make sure your brew equipment is clean and ready for brewing.

**Mashing**

- Add 1.25-2 quarts of water per pound of grain into your brew kettle and begin to heat to around 11-12°F above your target mash temperature. This is known as your strike water.
- Once your target strike temperature is reached, begin to mix your strike water and your milled grains into your mash tun. Be sure to stagger the water and grain additions, and stir as you go to break up any clumping. This process turns the grain starches into fermentable and unfermentable sugars and is now called the mash.
- If using the Brew-in-a-Bag (BIAB) method, simply put your grains into your brew bag and add to your strike water, stirring the mash to break up dough balls.
- Set a timer to mash for 60 minutes (unless otherwise instructed) at the specified temperature, or until desired conversion is reached.
- Begin heating about 5 gallons of water to 170°F. This is known as your sparge water.

**Sparging**

- Once the mash is finished, the liquid in your mash tun is now called wort, which is the brewing term for unfermented sugar water that will be turned into beer. (Think sweet tea).
- Slightly open the valve on your mash tun and pour a small amount (1-2 Liters) into a pitcher, then gently pour it back over the mash. This is known as vora-lauving, and it helps with clarifying your wort. Do this as many times as necessary to achieve desired clarity.
- Sparging is the process of rinsing the mashed grains with hot water to convert any remaining starches and collect any sugar that may be lingering.

**Fermenting**

**Pitching the yeast**

Using Dry Yeast

- **Dry yeast** - Though ready to pitch straight from the package, some brewers like to rehydrate the yeast before adding it to the fermenter.
- **To Rehydrate:** Simply add the dry yeast to a small, sanitized jar of boiled water that has been cooled to at least 90°F/32°C. Allow the yeast to rehydrate and rest for at least 5 minutes before mixing.
- **Liquid yeast** - If using Wyeast Smack Pack, follow instructions on the package. If using White Labs or other liquid yeast, give the package a steady shake to suspend any settled yeast fully into the mixture. Liquid yeast is preferred by many brewers to achieve beer styles that are not possible using a dry yeast.
- Soak the yeast package in sanitizer for a couple minutes before pitching. Using sanitized scissors, cut one corner of the packet off, and immediately pitch (pour) your yeast into the fermenter.
- Give the stopper and airlock a quick sanitizer bath, and return to the carboy or fermenting bucket to fully seal the fermenter.

**Bottling/Kegging**

- Before bottling, make sure all equipment (siphon, tubing, bottles, caps, etc.) is clean to the eye and sanitized with a no-rinse sanitizer.
- Add an ounce of corn sugar (dextrose, priming sugar) per gallon of beer to bottled to 2 cups of water in a small pot. Boil the solution for 5-10 minutes and then let it cool for another 5 to 10 minutes.
- Carefully add the sugar-water solution to the bottling bucket, then gently transfer your fermented beer into your sanitized bottling bucket via a sanitized siphon/tubing. While transferring, the beer will self-mix with the sugar solution.
- Using your sanitized bottle filler/tubing, attach the hose end to the spigot and fill each bottle with the beer, leaving about an inch of headspace. When using a bottling wand/filler, press the wand to the bottom of the bottle and fill until just below the very top. Once the wand is removed, the ideal amount of headspace will remain.
- Use your bottle capper to crimp your sanitized bottle caps onto the each bottle.
- Store your beer bottles in a dark environment around room temperature for 2 weeks. Refrigerate and serve, or age the bottles for longer, depending on the style of beer.

**Kegging**

- Before kegging, make sure all equipment (keg, lid, siphon, tubing, etc.) is clean to the eye and sanitized with a no-rinse sanitizer.
- If you’re carbonating your beer using force-carbonation, simply siphon the fermented beer out of the carboy into your sanitized keg, and seal the lid. Move the keg to your kegerator or refrigerator.
- Connect the gas-in line of your keg system to the keg, and set to around 10-12 PSI. Pull the pressure relief valve a few times to purge the keg of any oxygen that may have been introduced during the transfer. Allow the keg to carbonate for 5 - 7 days.
- Depending on the style of beer you brewed, you may want more or less carbonation.
- You can find a chart of carbonation guidelines for each style of beer at http://www.homebrewsupply.com/learn/homebrew-keg-carbonation-chart.html
  - When you’re ready to serve, adjust your PSI if necessary for a proper pour, and you’re good to go!